

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/315,068

NC 8. (Amended) A semiconductor laser as defined in Claim 1, wherein said at least a quantum well layer is one quantum well layer.

Please add the following new claims:

ESJ: 1/126
8. (New) A semiconductor laser as defined in Claim 8, wherein said upper optical waveguide layer is not smaller than 0.25 μm in thickness.

RUE/K C3
9. (New) A semiconductor laser as defined in 1, wherein a resonator of said semiconductor laser is formed as a stripe, boundaries of the interface between said upper cladding layer and said upper optical waveguide layer defining a stripe width of said resonator, said part of the upper cladding layer on the upper optical waveguide layer which is selectively removed defining a lateral edge of the stripe.

10. (New) A semiconductor laser as defined in 9, wherein said part of the upper cladding layer on the upper optical waveguide layer which is selectively removed is outside said stripe, said upper cladding layer forming a mesa stripe structure and said semiconductor laser being of a ridge waveguide type.

11. (New) A semiconductor laser comprising an active region which includes at least one quantum well layer and upper and lower optical waveguide layers on opposite sides of said at least one quantum well layer, the active region being formed of $In_xGa_{1-x}As_yP_{1-y}$ ($0 \leq x \leq 1$,

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C³
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$0 \leq y \leq 1$, and upper and lower cladding layers formed of AlGaAs on opposite sides of the active region, wherein the improvement comprises that

at least one of the optical waveguide layers is not smaller than $0.25\mu\text{m}$ in thickness, a current blocking layer interposed between portions of the upper cladding layer and the upper optical waveguide layer, said current blocking layer being on the upper optical waveguide layer, and the portions of the upper cladding layer and the upper optical waveguide layer having the current blocking layer interposed being along opposite lateral edges of said semiconductor laser, and

an interface of the upper cladding layer and the upper optical waveguide layer, said interface being adjacent to said portions of the upper cladding layer and the upper optical waveguide layer having the current blocking layer interposed.

12 *13.* (New) A semiconductor laser as defined in Claim *12*, wherein said current blocking layer is AlGaAs, having an opposite conductivity type to said upper cladding layer.

13 *14.* (New) A semiconductor laser as defined in Claim *12*, wherein the upper and lower optical waveguide layers on opposite sides of said at least one quantum well layer are different thicknesses.

14 *15.* (New) A semiconductor laser as defined in Claim *12*, wherein a thickness of the upper cladding layer is greater than zero, but less than or equal to $1\mu\text{m}$.

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15 16. (New) A semiconductor laser as defined by Claim 18, wherein a thickness of the upper cladding layer is greater than zero, but less than 1 μm .

C&A 1.12 C
16 17. (New) A semiconductor laser as defined in Claim 12, wherein said at least one quantum well layer is one quantum well layer.

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cont'd*
17 18. (New) A semiconductor laser as defined in Claim 12, wherein said upper optical waveguide layer is not smaller than 0.25 μm in thickness.

18 19. (New) A semiconductor laser as defined in 12, wherein a resonator of said semiconductor laser is formed as a stripe, boundaries of the interface between said upper cladding layer and said upper optical waveguide layer defining a stripe width of said resonator, said portions of the upper cladding layer and the upper optical waveguide layer having the current blocking layer interposed defining lateral edges of the stripe.

19 20. (New) A semiconductor laser as defined in 19, wherein said portions of the upper cladding layer and the upper optical waveguide layer having the current blocking layer interposed form a mesa stripe channel, said interface of the upper cladding layer and the upper optical waveguide layer being inside said mesa stripe channel.